

* Q1. Data types for each layer in OSI model?

* Application :- Messages.

— It deals with message data units specific to the application being used.

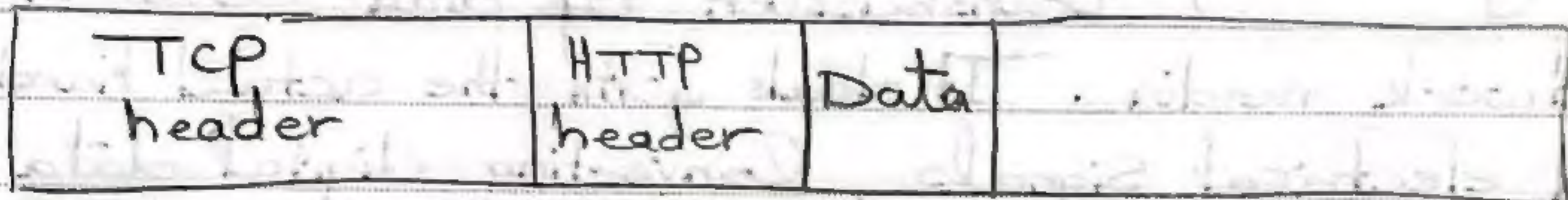
* Presentation layer :- Data units.

— It transforms the data received from the application layer into a format that can be understood by the application and handles any necessary encryption or compression.

Session layer :- Data units

It establishes, manages and terminates connections between applications. It defines the structure and synchronization of data units exchanged between applications.

Transport layer :- Segments (Tcp/UDP).



It segments the data received from the upper layers into smaller units (segments) for transmission and add necessary control information.

Network layer :- Packets.

The network layer is responsible for addressing, routing and forwarding packets across different networks. It encapsulates the frames into packets and adds logical addressing information. (as Ip address).

* 3. Mention the suitable network devices to perform the required functions.

- [1] Physical layer :- Network cables
(Ethernet cables, fiberoptic)
- [2] Data link layer :- Switches, bridges.
- [3] Network layer :- Routers.
- [4] Transport layer :- Transport-layer gateways
fire walls.
- [5] Session layer :- Session-layer's gateways.
- [6] Presentation layer :- Presentation layer's
gateways, encryption and decryption devices.
- [7] Application layer :- Application layer's gateway.

Data link layer :- Frames.

Add MAC address.

Physical layer :- Bits.

first 6-digits by IEEE.
 Last 6-digits Chosen by manufacturer
 Called Serial number.

* Q7 8- Compare between Physical & Logical.

Logical

Physical

Layer

Network layer

Datalink

Length

IPv4 or IPv6

↓
4 bytes

↓
32 bits

↓
16 bytes

↓
128 bits

6 bytes

↓
48 bits

Role

Provides logical identifier for devices on a network.

It operates at the network layer and used for internetwork comm, enabling routing between different networks.

IP

Provides a unique identifier for network interface controllers

operates at the hardware level. It operates at the data link layer

and used for local

MAC.

* Q7 8- Compare between Physical & Logical.

	Logical	Physical
Layer	Network layer	Datalink
Length	IPv4 or IPv6 ↓ 4 bytes ↓ 32 bits	6 bytes ↓ 48 bits

<p>Role</p> <p>Provides logical identifier for devices on a network.</p> <p>It operates at the network layer and used for internetwork comm, enabling routing between different networks.</p> <p>IP</p>	<p>Provides a unique identifier for network interface controllers (NICs) at the hardware level. It operates at the data link layer and used for local comm.</p> <p>MAC</p>
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"Sheet 2"

* Q6 :-

* MAC address :- (Media access control)

Unique 48-bit address/identifier
(12-digit hexadecimal).

first 6-digits chosen by IEEE

Last 6-digits Chosen by manufacturer Called "Serial number".

"Sheet 2"

* Q2 :-

* Network layer :-

① Network addressing

• Builds logical address and translates

Tcp/Ip

